—— A French committee for the propagation of the doctrines of evolution, is hesitating whether they shall call the subject of their teaching Darwinism or not. We are not surprised at their hesitation. Lamarck knew a good deal about evolution, but was not as well treated by his countrymen as Darwin has been by his. It is much better to be distinguished in England than in any other country. It is an amiable quality of the people of that fast little Isle to elevate well the angle of observation of their leading men, and to use good lenses in looking at them. This is an example which other nations should not be slow to follow, in scanning their own particular tract of the heavens.

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RECENT LITERATURE.

GEIKIE'S TEXT-BOOK OF GEOLOGY.[1]—Aside from the immediate economic importance of the study of geology, the ultimate facts of the science, particularly those standing on the border-land of that science, that ill-definable territory between science and philosophy, into which the inquiring and speculative mind of man peers, and which so powerfully appeals to his mythic instincts—it is these ultimate facts and theories in geology which render it, like its sister science of astronomy, so attractive, and yield to many minds so absorbing an interest. Geology is an inexact science, and will remain so forever, or at least while our finite minds have failed to solve the problems of the first beginnings of our planet, while the nebular hypothesis is only a guess; while the lowest platform of life lies only as far down as the Cambro-Silurian horizon, when it should perhaps be placed at the base of the Laurentian, and while our science has failed to settle the question whether the Laurentian and Mont-Albah metamorphic rocks were azoic or eozoic, and while palæontology is silent as to the earliest types of vertebrates, and even of the ancestral forms of our own species. So long as problems like these are unanswered, geology will claim the interest of the best spirits of our race.

No single text book can well present the principles of this many-sided science. Lyell's Elements and Juke's Manual became antiquated over a decade ago, and while Dana's Manual of Geology is, with some limitations, the most comprehensive work the English-reading student can find, one needs even more than one authoritative hand-book to refer to. The American student will find just what he needs in the excellent manual before us; as the references to points in American geology and palæontology, though not particularly full, yet give it additional value to the American reader.

This volume of 971 pages is somewhat in the same vein, if we

[1] *Text Book of Geology.* By ARCHIBALD GEIKIE, LL.D., F. R. S., Director-General of the Geological Survey of Great Britain and Ireland, etc. With Illustrations. London: Macmillan & Co., 1882. 8vo, pp. 971, $7.50.

may use a geological simile, as De la Beche's Geological Observer and Juke's Manual, but is naturally rather more comprehensive. It is an expansion of the author's article, "Geology," in the "Encyclopedia Brittanica."

The comprehensive nature of the work will be seen by the titles of the books and parts into which it is divided. Book I. Cosmical aspects of geology. II. Geognosy—An investigation of the materials of the earth's substance. Part 1. A general description of the parts of the earth. Part 2. An account of the composition of the earth's crust—Minerals and rocks. III. Dynamical geology. Part 1. Hypogene action—An inquiry into the geological changes in progress beneath the surface of the earth. Part 2. Epigene or surface action. IV. Geotectonic (structural) geology; or the architecture of the earth's crust. Part 1. Stratification and its accompaniments. 2. Joints. 3. Inclination of rocks. 4. Curvature. 5. Cleavage. 6. Dislocation. 7. Eruptive (igneous) rocks as part of the structure of the earth's crust. 8. The crystalline schists as part of the architecture of the earth's crust. 9. Ore deposits. 10. Unconformability. V. Palæontological geology. VI. Stratigraphical geology. Part 1. Archæan. 2. Palæozoic. 3. Mesozoic or secondary. 4. Cainozoic, or Tertiary. 3. Quaternary, or Post-tertiary. VII. Physiographical geology.

It will be seen by the exhibit that the treatment is catholic and broad. The accomplished author is naturally strongest on general geological topics, but we would like to have had rather more space devoted to palæontology. In this department the illustrations are neither remarkably fresh or striking, nor are they always well printed. The lithological portion is excellent and fresh in its treatment. In Book I the references on p. 28, and also on p. 421, to the Gulf Stream, which is said to flow into the Gulf of Mexico, and to Croll's statement that this stream is the main agent of transfer of heated water from the tropics to the northwestern coast of Europe, would not probably have appeared had the first part of the book not been printed before the results of the recent explorations of the U. S. Coast and Geodetic Survey had been published, though Commander Bartlett's paper in the Journal of the American Geographical Society appeared about a year ago. Dr. Croll's hypothetical stoppage of the Gulf stream to account for the glacial climate of Northern Europe is not warranted by palæontological facts, as it has been shown that the marine quaternary fauna of the eastern coast of the United States, while arctic from New York northward, was semi-tropical at Charleston, S. C., and hence the Gulf stream must have existed throughout the quaternary period; besides this, according to Dr. Carpenter, there is a general movement of warm surface-water northward in the Atlantic ocean, the Gulf stream not being the sole agent of the transfer northward of tropical heated water.

So extremely hypothetical, from palæontological considerations, is the evidence of so-called "interglacial periods," referred to on p. 29, that we wonder that our author should endorse Dr. Croll's speculations without stating some of the facts supposed to sustain such a view.

The age of the earth is, from facts relating to erosion, set down as "not much less than 100,000,000 years since the earliest forms of life appeared upon the earth, and the oldest stratified rocks began to be laid down;" this length of time, from the standpoint of physics, as advocated by Sir William Thompson, is the same, while Tait's estimate of fifteen or twenty millions is given, although based on "results confessedly less emphatic than those derived from the facts of erosion, of physics and of tidal retardation."

The author treats of the upheaval of land under dynamical geology, but reserves his brief discussion of the mode of elevation of mountain chains and of continents for the section on physiography; we should think all these subjects would come under the head of dynamical geology. Neither has he apparently availed himself of Darwin's and Mr. A. Agassiz's facts concerning the secular rise of the South American continent. He devotes less than a page to the grand theme of the evolution of the American continent; and in this part of the book we feel that Professor Geikie has not risen to the grandeur of the subject.

The care and elegance of the author's style; the generally excellent and apt illustrations; the typographical appearance of the book, allow little or no room for criticism. One geographical blunder is hardly excusable, especially as it is about a place in British possessions, though apparently inevitable in British authors (on p. 732, where "Canada" should read St. John, N. B.). On p. 801, after "Colorado," should be added the words, "and Wyoming."

While this Text-book of Geology does not, like Lyell's Elements and Principles, inculcate a great doctrine in geology, such as uniformitarianism; nor, like Dana's Manual, tell the story of the evolution of a continent, yet it is written in a graceful, attractive style, and presents in a comprehensive and sensible way the ground facts of the science.

INGERSOLL'S KNOCKING ROUND THE ROCKIES.[1] — This rather jaunty title sufficiently expresses the sketchy and fragmentary nature of an entertaining series of spirited sketches of nature and life in the Rocky mountains. Mr. Ingersoll was in 1874 attached to Dr. Hayden's U. S. Geological and Geographical Survey of the Territories, and afterwards made other trips to Colorado, accounts of which were contributed to *Harper's Magazine* and other

[1] *Knocking round the Rockies.* By ERNEST INGERSOLL. Illustrated. New York, Harper & Brothers, 1883. Large 8vo, pp. 220. $2.